

Magnetic Tunnel Junction Patterning using SiC or SiN

ABSTRACT OF THE DISCLOSURE

A material that is harder than silicon dioxide is used as a hard mask to pattern the soft layer of an MTJ stack of a magnetic memory device, which increases the process window for post-MTJ stack planarization. The soft layer hard mask material may comprise SiC, SiON, SiCN or SiN or another dielectric material having a Young's modulus greater than the Young's modulus of silicon dioxide. A hard fill dielectric material is also used as an insulating material over the hard mask used to pattern the soft layer. The fill dielectric material may also comprise SiC, SiON, SiCN or SiN or another dielectric material having a Young's modulus greater than the Young's modulus of silicon dioxide.